

AMENDMENT AND RESPONSE

Serial Number: 09/748,754

Filing Date: December 26, 2000

Title: SYSTEM AND METHOD FOR CARDIAC RHYTHM MANAGEMENT WITH SYNCHRONIZED PACING PROTECTION PERIOD

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Amendments to the Claims

Please amend claims 1, 7, 11, 16 and 21 as follows:

1. (Currently Amended) A method for operating a cardiac rhythm management device, comprising:

sensing rate and synchronized heart chambers through separate channels and generating sense signals upon detection of depolarization occurring in a chamber;

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pacing the synchronized chamber upon expiration of an escape interval in accordance with a synchronized pacing mode based upon rate chamber events, wherein no simultaneous pace is delivered to the rate chamber and wherein the escape interval is reset by a rate chamber sense such that no pace is delivered to the synchronized chamber during a cardiac cycle in which the rate sense occurs; and,

initiating a synchronized chamber protection period of predetermined duration after a synchronized chamber sense during which a pace to the synchronized chamber scheduled by the synchronized pacing mode is inhibited while the escape interval continues to run.

2. (Previously Amended) The method of claim 1 further comprising pacing the rate chamber in accordance with a bradycardia pacing mode based upon rate chamber senses and paces.

3. (Previously Amended) The method of claim 1 wherein the rate and synchronized chambers are ventricles.

4. (Previously Amended) The method of claim 1 wherein the rate and synchronized chambers are atria.

5. (Previously Amended) The method of claim 1 further comprising pacing one or more additional synchronized pacing sites in accordance with the synchronized pacing mode based upon rate chamber events and wherein pacing of each synchronized site is inhibited during the synchronized chamber protection period that is initiated by a sense or pace at the synchronized site.

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6. (Original) The method of claim 2 wherein the synchronized pacing mode is an offset synchronized pacing mode.

7. (Currently Amended) The method of claim 2 1 wherein the synchronized pacing mode is a synchronized chamber-only synchronized pacing mode.

8. (Original) The method of claim 7 further comprising delivering a safety pace to the rate chamber if the synchronized chamber pace is inhibited by the synchronized chamber protection period.

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9. (Original) The method of claim 2 wherein the synchronized pacing mode is a triggered synchronized pacing mode.

10. (Previously Amended) The method of claim 9 wherein a pace to the synchronized chamber may be triggered by the synchronized chamber sense and wherein the synchronized chamber protection period starts only after a specified delay from the synchronized chamber sense, which allows triggered pacing but prevents pacing during the vulnerable period of the synchronized chamber.

11. (Currently amended) A cardiac rhythm management device, comprising:

sensing channels for sensing depolarizations from heart chambers designated as a rate chamber and a synchronized chamber;

a first pacing channel for pacing the synchronized chamber;

a controller for controlling the delivery of paces in accordance with a programmed pacing mode; and,

wherein the controller is programmed to pace the synchronized chamber upon expiration of an escape interval in accordance with a synchronized pacing mode based upon rate chamber events, wherein no simultaneous pace is delivered to the rate chamber and wherein the escape

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interval is reset by a rate chamber sense such that no pace is delivered to the synchronized chamber during a cardiac cycle in which the rate sense occurs; and,

wherein the controller is programmed to initiate a synchronized chamber protection period of predetermined duration after a synchronized chamber sense during which a pace to the synchronized chamber scheduled by the synchronized pacing mode is inhibited while the escape interval continues to run .

C/ 12. (Previously Amended) The device of claim 11 further comprising a second pacing channel for pacing the rate chamber and wherein the controller is programmed to pace the rate chamber in accordance with a bradycardia pacing mode.

13. (Previously Amended) The device of claim 11 wherein the rate and synchronized chambers are ventricles.

14. (Previously Amended) The device of claim 11 wherein the rate and synchronized chambers are atria.

15. (Previously Amended) The device of claim 11 further comprising channels for pacing one or more additional synchronized pacing sites in accordance with the synchronized pacing mode based upon rate chamber events and wherein pacing of each synchronized site is inhibited during the synchronized chamber protection period that is initiated by a sense or pace at the synchronized site.

16. (Currently Amended) The device of claim ~~12~~ 11 wherein the synchronized pacing mode is an offset synchronized pacing mode.

17. (Original) The device of claim 12 wherein the synchronized pacing mode is a synchronized chamber-only synchronized pacing mode.

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18. (Previously Amended) The device of claim 17 wherein the controller is programmed to deliver a safety pace to the rate chamber if the synchronized chamber pace is inhibited by the synchronized chamber protection period.

19. (Original) The device of claim 12 wherein the synchronized pacing mode is a triggered synchronized pacing mode

20. (Previously Amended) The device of claim 19 wherein a pace to the synchronized chamber may be triggered by the synchronized chamber sense and wherein the synchronized chamber protection period starts only after a specified delay from such a triggering event, which allows triggered pacing but prevents pacing during the vulnerable period of the synchronized chamber.

21. (Currently Amended) A method for operating a cardiac rhythm management device, comprising:

sensing a heart chamber through a sensing channel and generating sense signals upon detection of depolarization occurring in the chamber; and,

pacing the chamber asynchronously at a constant selected rate, but wherein pacing of the chamber is inhibited during a protection period that is initiated by a pace or sense in the chamber.

22. (Original) The method of claim 21 wherein the heart chamber is a ventricle.

23. (Original) The method of claim 22 wherein the heart chamber is an atrium.

24. (Original) The method of claim 21 wherein the selected pacing rate is varied in accordance with measurements from an exertion level sensor.
